Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of claims:

Claim 1 (currently amended). A laser diode, comprising:

a vertical resonator including a plurality of reflector layers, at least one active layer disposed between said plurality of reflector layers, and at least one antioxidation layer disposed between said plurality of reflector layers;

said antioxidation layer including a III-V semiconductor material with an optical thickness of at least two quarter-wavelengths; and

said antioxidation layer and said active layer being configured in a layer structure without an additional layer interposed between said antioxidation layer and said active layer.

Claim 2 (original). The laser diode according to claim 1, wherein said antioxidation layer consists only of said III-V semiconductor material.

Claim 3 (original). The laser diode according to claim 1, wherein said antioxidation layer consists of said III-V semiconductor material with a molar aluminum fraction of less than 0.7.

Claim 4 (original). The laser diode according to claim 1, wherein said antioxidation layer consists of $Al_xGa_{1-x}As$ or a chemically selective etch stop layer.

Claim 5 (original). The laser diode according to claim 1, wherein said antioxidation layer consists of $In_yAl_xGa_{1-x-y}As_{1-z}P_z$.

Claim 6 (original). The laser diode according to claim 1, wherein said antioxidation layer is disposed above said active layer.

Claim 7 (original). The laser diode according to claim 1, wherein said antioxidation layer is disposed below said active layer.

Claim 8 (cancelled).

Claim 9 (original). The laser diode according to claim 1, wherein said antioxidation layer is constructed as an etch stop layer and/or an etch runout layer.

Claim 10 (original). The laser diode according to claim 1, wherein said antioxidation layer is at least partly modulation-doped.

Claim 11 (original). The laser diode according to claim 1, wherein at least one of said plurality of reflector layers includes a molar aluminum fraction of less than 0.9.

Claim 12 (original). The laser diode according to claim 1, wherein at least one of said plurality of reflector layers, which is adjacent said active layer, includes a molar aluminum fraction of less than 0.9.

Claim 13 (currently amended). ~~The laser diode according to claim 1, further comprising:~~ A laser diode, comprising:

a vertical resonator including a plurality of reflector layers, at least one active layer disposed between said plurality of reflector layers, and at least one antioxidation layer disposed between said plurality of reflector layers;

said antioxidation layer including a III-V semiconductor material with an optical thickness of at least two quarter-wavelengths;

at least one current aperture layer;

said antioxidation layer constructed as an etch stop layer and/or an etch runout layer; and

said antioxidation layer disposed between said plurality of reflector layers and above said current aperture layer.

Claim 14 (currently amended). ~~The laser diode according to claim 1, further comprising:~~ A laser diode, comprising:

a vertical resonator including a plurality of reflector layers, at least one active layer disposed between said plurality of reflector layers, and at least one antioxidation layer disposed between said plurality of reflector layers;

said antioxidation layer including a III-V semiconductor material with an optical thickness of at least two quarter-wavelengths;

at least one current aperture layer; and

a coverlayer for protecting layers being uncovered after an etching process against oxidation during processing steps subsequent to said etching process;

said antioxidation layer ~~1~~ disposed above said current aperture layer ~~10~~.

Claim 15 (original). The laser diode according to claim 14, wherein said coverlayer is a CVD-SiN_x coverlayer.

Claim 16 (currently amended). A method for fabricating a laser diode, which comprises:

providing the laser diode with a vertical resonator having at least one active layer disposed between reflector layers; ~~and~~

providing at least one antioxidation layer consisting of a III-V semiconductor material with an optical thickness of at least two quarter-wavelengths and configuring the antioxidation layer between the reflector layers; and

configuring the antioxidation layer and the active layer in a layer structure without an additional layer interposed between the antioxidation layer and the active layer.

Claim 17 (original). The method according to claim 16, wherein the III-V semiconductor material of the antioxidation layer has a molar aluminum fraction of less than 0.7.

Claim 18 (original). The method according to claim 16, wherein the antioxidation layer consists of $Al_xGa_{1-x}As$.

Claim 19 (original). The method according to claim 16, wherein the antioxidation layer consists of a chemically selective etch stop layer.

Claim 20 (original). The method according to claim 19, wherein the antioxidation layer consists of $In_{y-}Al_xGa_{1-x-y}As_{1-z}P_z$.

Claim 21 (new). A method for fabricating a laser diode, which comprises:

providing the laser diode with a vertical resonator having at least one active layer disposed between reflector layers;

providing at least one antioxidation layer consisting of a III-V semiconductor material with an optical thickness of at least two quarter-wavelengths and configuring the antioxidation layer between the reflector layers;

providing at least one current aperture layer;

constructing the antioxidation layer as an etch stop layer and/or an etch runout layer; and

disposing the antioxidation layer between the plurality of reflector layers and above the current aperture layer.

Claim 22 (new). A method for fabricating a laser diode, which comprises:

providing the laser diode with a vertical resonator having at least one active layer disposed between reflector layers;

providing at least one antioxidation layer consisting of a III-V semiconductor material with an optical thickness of at least two quarter-wavelengths and configuring the antioxidation layer between the reflector layers;

providing at least one current aperture layer;

uncovering a coverlayer for protecting layers after an etching process against oxidation during processing steps subsequent to the etching process; and

disposing the antioxidation layer above the current aperture layer.

Claim 23 (new). The method according to claim 21, wherein the III-V semiconductor material of the antioxidation layer has a molar aluminum fraction of less than 0.7.

Claim 24 (new). The method according to claim 21, wherein the antioxidation layer consists of $Al_xGa_{1-x}As$.

Claim 25 (new). The method according to claim 21, wherein the antioxidation layer consists of a chemically selective etch stop layer.

Claim 26 (new). The method according to claim 25, wherein the antioxidation layer consists of $In_y-Al_xGa_{1-x-y}As_{1-z}P_z$.

Claim 27 (new). The method according to claim 22, wherein the III-V semiconductor material of the antioxidation layer has a molar aluminum fraction of less than 0.7.

Claim 28 (new). The method according to claim 22, wherein the antioxidation layer consists of $Al_xGa_{1-x}As$.

Claim 29 (new). The method according to claim 22, wherein the antioxidation layer consists of a chemically selective etch stop layer.

Claim 30 (new). The method according to claim 29, wherein the antioxidation layer consists of $In_y Al_x Ga_{1-x-y} As_{1-z} P_z$.

Claim 31 (new). The laser diode according to claim 13, wherein said antioxidation layer consists only of said III-V semiconductor material.

Claim 32 (new). The laser diode according to claim 13, wherein said antioxidation layer consists of said III-V semiconductor material with a molar aluminum fraction of less than 0.7.

Claim 33 (new). The laser diode according to claim 13, wherein said antioxidation layer consists of $Al_x Ga_{1-x} As$ or a chemically selective etch stop layer.

Claim 34 (new). The laser diode according to claim 13, wherein said antioxidation layer consists of $In_y Al_x Ga_{1-x-y} As_{1-z} P_z$.

Claim 35 (new). The laser diode according to claim 13, wherein said antioxidation layer is disposed above said active layer.

Claim 36 (new). The laser diode according to claim 13, wherein said antioxidation layer is disposed below said active layer.

Claim 37 (new). The laser diode according to claim 13, wherein said antioxidation layer is constructed as an etch stop layer and/or an etch runout layer.

Claim 38 (new). The laser diode according to claim 13, wherein said antioxidation layer is at least partly modulation-doped.

Claim 39 (new). The laser diode according to claim 13, wherein at least one of said plurality of reflector layers includes a molar aluminum fraction of less than 0.9.

Claim 40 (new). The laser diode according to claim 13, wherein at least one of said plurality of reflector layers, which is adjacent said active layer, includes a molar aluminum fraction of less than 0.9.

Claim 41 (new). The laser diode according to claim 14, wherein said antioxidation layer consists only of said III-V semiconductor material.

Claim 42 (new). The laser diode according to claim 14, wherein said antioxidation layer consists of said III-V semiconductor material with a molar aluminum fraction of less than 0.7.

Claim 43 (new). The laser diode according to claim 14, wherein said antioxidation layer consists of $Al_xGa_{1-x}As$ or a chemically selective etch stop layer.

Claim 44 (new). The laser diode according to claim 14, wherein said antioxidation layer consists of $In_yAl_xGa_{1-x-y}As_{1-z}P_z$.

Claim 45 (new). The laser diode according to claim 14, wherein said antioxidation layer is disposed above said active layer.

Claim 46 (new). The laser diode according to claim 14, wherein said antioxidation layer is disposed below said active layer.

Claim 47 (new). The laser diode according to claim 14, wherein said antioxidation layer is constructed as an etch stop layer and/or an etch runout layer.

Claim 48 (new). The laser diode according to claim 14, wherein said antioxidation layer is at least partly modulation-doped.

Claim 49 (new). The laser diode according to claim 14, wherein at least one of said plurality of reflector layers includes a molar aluminum fraction of less than 0.9.

Claim 50 (new). The laser diode according to claim 14, wherein at least one of said plurality of reflector layers, which is adjacent said active layer, includes a molar aluminum fraction of less than 0.9.